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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,995	06/20/2001	Viktor Stoller	M0-6398/STA-154	6775

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EXAMINER
VIJAYAKUMAR, KALLAMBELLA M

ART UNIT	PAPER NUMBER
1751	

DATE MAILED: 06/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/868,995	STOLLER ET AL.	
	Examiner	Art Unit	
	Kallambella Vijayakumar	1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-24* is/are rejected.

7)☒ Claim(s) *18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Detailed Action

- This application is a 371 of PCT/EP99/09912 filed 12/14/1999 claiming a priority based on German Applications # 198-60-143.3 filed 12/24/1998 and 199-39-025.8 filed 08/18/1999.
- Acknowledge the cancellation of claims 1-11, addition of claims 12-24, and amendments to specification and abstract per the preliminary amendment in Paper-3 filed 06/20/2001. Claims 12-24 are currently pending.
- The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
- The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A (1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the examiner on form PTO-892 has cited the references, they have not been considered.

Specification

- The abstract of the disclosure is objected to because, the abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text. Correction is required. See MPEP § 608.01(b).

Claim Objections

- Claim 18 is objected to because of the following informalities: the element Sc is wrongly grouped with rare-earth metals. Appropriate correction is required.

Claim Rejections - 35 USC § 102
Claim Rejections - 35 USC § 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

- Claims 12-17, 21, 23-24 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kelkar et al (US Patent # 5,518,704).
  - Kelkar et al disclose Nickel containing hydrotalcite-like materials with sheet-like morphology and the formula, $M_{1-x}Al_x\ (OH)_{2-x}A^-.mH_2O$ ($0.2 \leq x \leq 0.4$, $0 \leq m \leq 4$) wherein M is Ni or Co, and A is mono-carboxylic anion that electrically neutralizes the positively charged hydroxide structure. A-anion could be substituted by one or more different anions up to 90-mole % keeping the hydrotalcite-like structure intact (Col-2, Lines: 15-Abstract). Kelkar et al further disclose that M could be substituted up to 50-mole % with cations such as **Mg**, **Ni**, **Co**, Zn, Cu and Mn while **Al** could be substituted up to 50-mole % with Cr and **Fe** in the composition retaining the sheet-like structure. A composition comprising a combination of elements, particularly Ni-Co-Mg-Al in the mole ratios permitted by Kelkar would meet the composition limits by the instant claims. When metals such as Ni are partially substituted in the mixed-oxides and mixed-hydroxides with multivalent metals such as cobalt, cobalt would exhibit multiple oxidation states in the lattice such as 2^+ and 3^+ by virtue of charge compensation in the multivalent system as shown by Zeng et al, and the minimum higher oxidation level of 1% required by the

limitation of α in claim-16 would inherently be met with the composition of Kelkar. The particle size limitation would be met by the electron micrographs and the size data for the mixed hydroxides given by Kelkar (Col-2, Lines: 15-50; Col-3, Lines: 62-68; Fig 3a and 3b). The composite-hydroxide was prepared by co-precipitation of metal ions from an aqueous solution containing corresponding cationic salts in appropriate molar ratios at a pH of 7-12, a temperature of 40C (min) and atmospheric conditions, wherein the oxidation cations such as cobalt by atmospheric oxygen would be inherent. A combination of desired anions could be used in the synthesis mixture comprising of mono-carboxylic anions. All the limitations of the instant claims are met.

- The reference is anticipatory.
- In the alternative that the disclosure by Kelkar et al be insufficient to arrive at the limitations of the instant claims it would have been obvious for a person of ordinary skill in the art to choose desired components and/or make modifications to the preparation procedure by choice of design to arrive at the limitations of the instant claims by the applicants with reasonable expectation of success.

- Claims 12-20 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bernard et al (US Patent # 6,156,454).
  - Bernard et al disclose mixed hydroxide phase of the hydrotalcite type structure comprising of co-crystallized with Ni and Y. Bernard further disclose that the solid solution chiefly comprises of Ni along with at least one of the hydroxides of **Co**, **Al**, Fe, Cu, Cr, Mn and at least one of the hydroxides selected from Cd, Zn and **Mg**. The

composite composition comprising of mainly Nickel coupled with not more than 20% of hydroxides of one or more of other co-crystallized elements would meet the molar ratio requirements for the component metals by the applicants. The presence of anions for the balancing of charges, use of halide precursors or anions and the water of hydration for the hydrotalcite-structured mixed hydroxides would be inherent as shown by Kelkar et al. The particle size limitation would be inherent for these mixed-hydroxides as shown by Kelkar et al. The mixed oxidation states of elements such as Co in the Ni-mixed-hydroxide and ratio of the highest oxidation to total elemental Co would be inherent for the reasons given in the earlier section. Bernard et al also claim an electrode and a battery made using the Ni-composite hydroxide and further suggest that the invention is susceptible to many variants that will suggest themselves to skilled person (Col-2, Lines: 1-24; Lines: 53-58; Col-5, 38-45). All the limitations of the instant claims are met.

- The reference is anticipatory.
- In the alternative that the disclosure by Bernard et al be insufficient to arrive at the limitations of the instant claims it would have been obvious for a person of ordinary skill in the art to choose the desired components and/or make modifications to the procedure by choice of design to arrive at the limitations of the instant claims by the applicants with reasonable expectation of success.

- Claims 12-24 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Matsuda et al (EP 793285).
    - Matsuda et al disclose compositions for **Ni**-hydroxide-solid-solutions comprising of at least one element selected from (A) Fe/Cr/V/Ti/**Y**/La/Ce/**Al**/Pb and at least one element (B) Mn/**Co**, wherein molar ratios of A and B is 3 Mole % of Nickel or more, but less than 50 mole % of Ni. Further, the active material includes at least one additional element selected from (C) Y/Ba/**Ca**/Sr/Cd/Cu/Ag in the amount of 0.1 to 5-wt % of the composite hydroxide for a positive electrode of a battery. Matsuda et al further disclose the preparation of Ni-composite hydroxide by co-precipitating the component metal hydroxides from an aqueous solution containing requisite amounts of corresponding metal salts and an electrolytic process for coating the constituents (Page-2, Line 45-55, Page-3, Example-1, Page-6, Example-15; Page-8, Claims 1-5). The presence of water of hydration and the anions such as halides or sulfates for electro-neutrality would be inherent as shown by Willmann et al (EP 390677) who further teaches the preparation and red-ox chemistry for the Ni-Co-composite-hydroxides. The composition of Ni-hydroxide-solid-solution by Matsuda would meet the components ratio, the presence of variable oxidation states for the elements such as Co in Ma position, the minimum α-value and the particle size limitations by the applicants would be inherent for the reasons given under Kelkar et al. The pH range for the co-precipitation of the metal hydroxides would be anticipatory based on the basic nature of the metals employed, The oxidation of metals such as Co by air under the preparative conditions would be inherent. It is the examiners position that Nickel-hydroxide (Abe, US Patent # 5,635,313, Col-3, Lines: 66-

67) and composites including any crystal order and/or structural arrangement with reference to a plane could be viewed as a layer structure and would meet the limitation of "layer structure" by the applicants. All the limitations of the instant claims are met.

Normally, only one reference should be used in making a rejection under 35 U.S.C. 102. However, a 35 U.S.C. 102 rejection over multiple references has been held to be proper when the extra references are cited to (See MPEP 2131.01):

(A) Prove the primary reference contains an "enabled disclosure; "
(B) Explain the meaning of a term used in the primary reference; or
(C) Show that a characteristic not disclosed in the reference is inherent.

- The reference is anticipatory.
- In the alternative that the disclosure by Matsuda et al be insufficient to arrive at the limitations of the instant claims it would have been obvious for a person of ordinary skill in the art to choose the desired components and/or make modifications to the procedure by choice of design to arrive at the limitations of the instant claims by the applicants with reasonable expectation of success.

Conclusion

- The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Yano et al (EP 696076) discloses Ni-hydroxide covered with a layer of Mo-Zn-In-Al-Co-hydroxides that could be visualized as a layered structure.
- Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 703-305-4931. The examiner can normally be reached on M-Th, 07:00 - 15.30 hrs, Fri: 05.30-14.00.

- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 703-308-4708. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-305-3599 for After Final communications.
- Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

kmv
May 30, 2003

YOGENDRA N. GUPTA
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